

SECTION 1 Identification**1.1. Product identifier**

Product form : Mixture
Product name : TRISTEL OPH ACTIVATOR SOLUTION

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Restrictions on use : Uses other than the intended use of the product.

1.4. Supplier's details**Manufacturer**

Tristel Solutions Limited
Unit 1B
Lynx Business Park
Fordham Road
Newmarket, Cambridgeshire, CB8 7NY
United Kingdom
T +44 (0) 1638 721500
SDS@tristel.com

Distributor

Tristel Inc.
75
State Street
Boston, MA 02109, Massachusetts
USA
T +1 857-557-8023
mail-us@tristel.com

1.5. Emergency phone number

Emergency number : If over-exposure occurs call your Poison Center at 1-800-222-1222 or go to poisonhelp.org

SECTION 2 Hazard Identification**2.1. Classification of the substance or mixture****GHS US classification**

Not classified

2.2. Label elements**GHS US labeling**

No labeling applicable

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

TRISTEL OPH ACTIVATOR SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
1-DECANAMINE,N,N-DIMETHYL-N-OXIDE	CAS-No.: 2605-79-0	<1	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
SODIUM CHLORITE 100%	CAS-No.: 7758-19-2	<1	Ox. Sol. 1, H271 Acute Tox. 3 (Oral), H301 Acute Tox. 2 (Dermal), H310 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 3, H412

Full text of hazard classes and H-statements : see section 16

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Rinse mouth out with water. Call a poison center/doctor/physician if you feel unwell.
Personal protection for first-aid responders.	: First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: May cause moderate irritation.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May cause irritation to the digestive tract.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment	: Treat symptomatically.
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SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
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5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire	: Toxic fumes may be released.
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TRISTEL OPH ACTIVATOR SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Emergency procedures : Ventilate spillage area.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth.
Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

For further information refer to section 13

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including incompatibilities

Storage conditions : Store in a ventilated area out of direct sunlight.
Storage temperature : 15 – 25 °C (59 - 77°F)
Specific end uses : To be used with Tristel OPH Base solution. For professional use only.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:

Protective gloves

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Eye protection:
Safety glasses
Skin and body protection:
Wear suitable protective clothing
Respiratory protection:
Ensure there is sufficient ventilation of the area during use.

Personal protective equipment symbol(s):



SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	: Liquid
Color	: Colorless
Odor	: odorless
Odor threshold	: No data available
pH	: 10.3-11.3
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: 1.000-1.010
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Explosion limits	: No data available
Particle characteristics	: No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

TRISTEL OPH ACTIVATOR SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

TRISTEL OPH ACTIVATOR SOLUTION

LD50 oral rat	> 2000 mg/kg
LC50 Inhalation - Rat	> 5.61 mg/l

SODIUM CHLORITE 100% (7758-19-2)

ATE US (oral)	100 mg/kg body weight
ATE US (dermal)	50 mg/kg body weight

1-DECANAMINE,N,N-DIMETHYL-N-OXIDE (2605-79-0)

LD50 oral rat	300 – 2000 mg/kg body weight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Guideline: EU Method B.1 tris (Acute Oral Toxicity - Acute Toxic Class Method)
LD50 oral	300 – 2000 mg/kg
LD50 dermal rat	> 2000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation : OECD 404 Slight erythema - Slight irritant
pH: 10.3-11.3

Serious eye damage/irritation : Not classified
pH: 10.3-11.3

Respiratory or skin sensitization : Not a skin sensitizer – ISO 10993-10
Germ cell mutagenicity : Non-Mutagenic – OECD 471

Carcinogenicity : Not classified

SODIUM CHLORITE 100% (7758-19-2)

IARC group	3 - Not Classifiable
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Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

SODIUM CHLORITE 100% (7758-19-2)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
1-DECANAMINE,N,N-DIMETHYL-N-OXIDE (2605-79-0)	
NOAEL (oral,rat,90 days)	40 mg/kg body weight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test), Guideline: other:

Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: May cause moderate irritation.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May cause irritation to the digestive tract.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

SODIUM CHLORITE 100% (7758-19-2)	
LC50 - Fish [1]	265 – 310 mg/l
EC50 - Other aquatic organisms [1]	0.29 mg/l
1-DECANAMINE,N,N-DIMETHYL-N-OXIDE (2605-79-0)	
LC50 - Fish [1]	134 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	10.4 mg/l Test organisms (species): Daphnia magna
LC50 - Fish [2]	31.8 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [2]	3.1 mg/l Test organisms (species): Daphnia magna
NOEC (chronic)	0.7 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	0.42 mg/l

12.2. Persistence and degradability

TRISTEL OPH ACTIVATOR SOLUTION	
Persistence and degradability	Biodegradability in water: no data available.
SODIUM CHLORITE 100% (7758-19-2)	
Persistence and degradability	Biodegradability in water: no data available.
1-DECANAMINE,N,N-DIMETHYL-N-OXIDE (2605-79-0)	
Persistence and degradability	Rapidly degradable
Biodegradation	97 %

12.3. Bioaccumulative potential

No additional information available

TRISTEL OPH ACTIVATOR SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone	: Not classified
Fluorinated greenhouse gases	: No

SECTION 13 Disposal considerations

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.

SECTION 14 Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

UN-No. (DOT)	: Not applicable
UN-No. (TDG)	: Not applicable
UN-No. (IMDG)	: Not applicable
UN-No. (IATA)	: Not applicable

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT)	: Not applicable
Proper Shipping Name (TDG)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT)	: Not applicable
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TDG

Transport hazard class(es) (TDG)	: Not applicable
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IMDG

Transport hazard class(es) (IMDG)	: Not applicable
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IATA

Transport hazard class(es) (IATA)	: Not applicable
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14.4. Packing group

Packing group (DOT)	: Not applicable
Packing group (TDG)	: Not applicable
Packing group (IMDG)	: Not applicable
Packing group (IATA)	: Not applicable

14.5. Environmental hazards

Other information	: No supplementary information available.
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TRISTEL OPH ACTIVATOR SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT

Not applicable

TDG

Not applicable

IMDG

Not applicable

IATA

Not applicable

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
SODIUM CHLORITE 100%	7758-19-2	Present		
1-DECANAMINE,N,N-DIMETHYL-N-OXIDE	2605-79-0	Not present	-	

15.2. International regulations

CANADA

SODIUM CHLORITE 100% (7758-19-2)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

SODIUM CHLORITE 100% (7758-19-2)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. State regulations

No additional information available

SECTION 16 Other information

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Revision date : 5/21/2025

Issue date : 5/21/2025

Full text of hazard classes and H-statements

H271	May cause fire or explosion; strong oxidizer
H301	Toxic if swallowed

TRISTEL OPH ACTIVATOR SOLUTION

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Full text of hazard classes and H-statements	
H302	Harmful if swallowed
H310	Fatal in contact with skin
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SECTION 1 Identification**1.1. Product identifier**

Product form : Mixture
Product name : TRISTEL OPH BASE SOLUTION

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Restrictions on use : Uses other than the intended use of the product.

1.4. Supplier's details**Manufacturer**

Tristel Solutions Limited
Unit 1B
Lynx Business Park
Fordham Road
Newmarket, Cambridgeshire, CB8 7NY
United Kingdom
T +44 (0) 1638 721500
SDS@tristel.com

Distributor

Tristel Inc.
75
State Street
Boston, MA 02109, Massachusetts
USA
T +1 857-557-8023
mail-us@tristel.com

1.5. Emergency phone number

Emergency number : If over-exposure occurs call your Poison Center at 1-800-222-1222 or go to poisonhelp.org

SECTION 2 Hazard Identification**2.1. Classification of the substance or mixture****GHS US classification**

Not classified

2.2. Label elements**GHS US labeling**

No labeling applicable

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

TRISTEL OPH BASE SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
CITRIC ACID MONOHYDRATE	CAS-No.: 5949-29-1	1 - 10	Eye Irrit. 2, H319 STOT SE 3, H335
1-DECANAMINE,N,N-DIMETHYL-N-OXIDE	CAS-No.: 2605-79-0	<1	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 2, H411

Full text of hazard classes and H-statements : see section 16

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center/doctor/physician if you feel unwell.
Personal protection for first-aid responders.	: First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: May cause moderate irritation.
Symptoms/effects after eye contact	: May cause eye irritation.
Symptoms/effects after ingestion	: May cause irritation to the digestive tract.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment	: Treat symptomatically.
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SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
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5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire	: Toxic fumes may be released.
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5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
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TRISTEL OPH BASE SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Emergency procedures : Ventilate spillage area.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Environmental precautions : Avoid release to the environment.

6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth.
Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

For further information refer to section 13

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including incompatibilities

Storage conditions : Store in a ventilated area out of direct sunlight.
Storage temperature : 15 – 25 °C (59 - 77°F)
Specific end uses : To be used with Tristel OPH Activator solution. For professional use only.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:

Avoid contact with skin.

Eye protection:

Safety glasses

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Ensure there is sufficient ventilation of the area during use.

Personal protective equipment symbol(s):



SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	: Liquid
Color	: Blue.
Odor	: characteristic
Odor threshold	: No data available
pH	: 2.0-3.0
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: 1.020-1.030
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Explosion limits	: No data available
Particle characteristics	: No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

TRISTEL OPH BASE SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

TRISTEL OPH BASE SOLUTION

LD50 oral rat	> 5000 mg/kg
LC50 Inhalation - Rat	> 5.24 mg/l

CITRIC ACID MONOHYDRATE (5949-29-1)

LD50 oral rat	11700 mg/kg
LD50 dermal rat	> 2000 mg/kg

1-DECANAMINE,N,N-DIMETHYL-N-OXIDE (2605-79-0)

LD50 oral rat	300 – 2000 mg/kg body weight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method), Guideline: EU Method B.1 tris (Acute Oral Toxicity - Acute Toxic Class Method)
LD50 oral	300 – 2000 mg/kg
LD50 dermal rat	> 2000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation : Primary Irritation Index (PII) = 0.3 - Slightly irritating
pH: 2.0-3.0

Serious eye damage/irritation : The maximum average score of 22.0 was obtained 1 hour after treatment according to OCSPP 870.2400 and OECD 405 guidelines - Mildly irritating
pH: 2.0-3.0

Respiratory or skin sensitization : Not a skin sensitizer – OCSPP 870.2600/OECD 429

Germ cell mutagenicity : No data available to indicate product or any components present greater than 0.1% are mutagenetic or genotoxic.

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

CITRIC ACID MONOHYDRATE (5949-29-1)

STOT-single exposure	May cause respiratory irritation.
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STOT-repeated exposure : Not classified

1-DECANAMINE,N,N-DIMETHYL-N-OXIDE (2605-79-0)

NOAEL (oral,rat,90 days)	40 mg/kg body weight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test), Guideline: other:
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TRISTEL OPH BASE SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Aspiration hazard : Not classified

CITRIC ACID MONOHYDRATE (5949-29-1)

Viscosity, kinematic	Not applicable
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Symptoms/effects after inhalation : May cause respiratory irritation.

Symptoms/effects after skin contact : May cause moderate irritation.

Symptoms/effects after eye contact : May cause eye irritation.

Symptoms/effects after ingestion : May cause irritation to the digestive tract.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

CITRIC ACID MONOHYDRATE (5949-29-1)

LC50 - Fish [1]	440 – 706 mg/l
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1-DECANAMINE,N,N-DIMETHYL-N-OXIDE (2605-79-0)

LC50 - Fish [1]	134 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
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EC50 - Crustacea [1]	10.4 mg/l Test organisms (species): Daphnia magna
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LC50 - Fish [2]	31.8 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
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EC50 - Crustacea [2]	3.1 mg/l Test organisms (species): Daphnia magna
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NOEC (chronic)	0.7 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
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NOEC chronic fish	0.42 mg/l
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12.2. Persistence and degradability

TRISTEL OPH BASE SOLUTION

Persistence and degradability	Biodegradability in water: no data available.
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CITRIC ACID MONOHYDRATE (5949-29-1)

Persistence and degradability	Rapidly degradable
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Biodegradation	97 %
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1-DECANAMINE,N,N-DIMETHYL-N-OXIDE (2605-79-0)

Persistence and degradability	Rapidly degradable
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Biodegradation	97 %
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12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

TRISTEL OPH BASE SOLUTION

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

12.5. Other adverse effects

Ozone	: Not classified
Fluorinated greenhouse gases	: No

SECTION 13 Disposal considerations

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.

SECTION 14 Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

UN-No. (DOT)	: Not applicable
UN-No. (TDG)	: Not applicable
UN-No. (IMDG)	: Not applicable
UN-No. (IATA)	: Not applicable

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT)	: Not applicable
Proper Shipping Name (TDG)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable

14.3. Transport hazard class(es)

DOT	
Transport hazard class(es) (DOT)	: Not applicable

TDG	
Transport hazard class(es) (TDG)	: Not applicable

IMDG	
Transport hazard class(es) (IMDG)	: Not applicable

IATA	
Transport hazard class(es) (IATA)	: Not applicable

14.4. Packing group

Packing group (DOT)	: Not applicable
Packing group (TDG)	: Not applicable
Packing group (IMDG)	: Not applicable
Packing group (IATA)	: Not applicable

14.5. Environmental hazards

Other information	: No supplementary information available.
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14.6. Transport in bulk

Not applicable

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

14.7. Special precautions for user

DOT

Not applicable

TDG

Not applicable

IMDG

Not applicable

IATA

Not applicable

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
CITRIC ACID MONOHYDRATE	5949-29-1	Not present	-	
1-DECANAMINE,N,N-DIMETHYL-N-OXIDE	2605-79-0	Not present	-	

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Revision date : 5/21/2025

Issue date : 5/21/2025

Full text of hazard classes and H-statements

H302	Harmful if swallowed
H318	Causes serious eye damage
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : TRISTEL OPH WORKING SOLUTION

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Use of the substance/mixture : Disinfectant
Recommended use : Disinfectant
Restrictions on use : Uses other than the intended use of the product.

1.4. Supplier's details

Manufacturer

Tristel Solutions Limited
Unit 1B
Lynx Business Park
Fordham Road
Newmarket, Cambridgeshire, CB8 7NY
United Kingdom
T +44 (0) 1638 721500
SDS@tristel.com

Distributor

Tristel Inc.
75
State Street
Boston, MA 02109, Massachusetts
USA
T +1 857-557-8023
mail-us@tristel.com

1.5. Emergency phone number

Emergency number : If over-exposure occurs call your Poison Center at 1-800-222-1222 or go to poisonhelp.org

SECTION 2 Hazard Identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. Label elements

GHS US labeling

No labeling applicable

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

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SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
chlorine dioxide ... %	CAS-No.: 10049-04-4	<1	Acute Tox. 3 (Oral), H301 Skin Corr. 1B, H314 Aquatic Acute 1, H400

Full text of hazard classes and H-statements : see section 16

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center/doctor/physician if you feel unwell.
Personal protection for first-aid responders.	: First aid workers will be equipped with suitable personal protective equipment.

4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: May cause moderate irritation.
Symptoms/effects after eye contact	: May cause slight irritation.
Symptoms/effects after ingestion	: May cause irritation to the digestive tract.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment	: Treat symptomatically.
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SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
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5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire	: Toxic fumes may be released.
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5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
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SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
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Emergency procedures : Ventilate spillage area.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Environmental precautions : Avoid release to the environment.

6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth.
Methods for cleaning up : Take up liquid spill into absorbent material.
Other information : Dispose of materials or solid residues at an authorized site.

For further information refer to section 13

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool.
Specific end uses : Disinfectant Solution. For professional use only.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

TRISTEL OPH WORKING SOLUTION	
USA - ACGIH - Occupational Exposure Limits	
Local name	Chlorine dioxide
ACGIH® TLV® C	0.28 mg/m³
	0.1 ppm
Remark (ACGIH)	TLV® Basis: Resp tract irr; pulm edema
Regulatory reference	ACGIH 2025
USA - OSHA - Occupational Exposure Limits	
Local name	Chlorine dioxide
OSHA PEL TWA	0.3 mg/m³
	0.1 ppm
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
USA - Cal/OSHA - Occupational Exposure Limits	
Local name	Chlorine dioxide
Cal/OSHA PEL (OEL TWA)	0.3 mg/m³

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TRISTEL OPH WORKING SOLUTION	
	0.1 ppm
Cal/OSHA STEL	0.9 mg/m³
	0.3 ppm
Regulatory reference	California Division of Occupational Safety and Health (Cal/OSHA) - Permissible Exposure Limit for Chemical Contaminants (Table AC-1)
USA - NIOSH - Occupational Exposure Limits	
Local name	Chlorine dioxide
NIOSH REL 10h TWA	0.1 ppm
NIOSH REL STEL	0.3 ppm
Regulatory reference (US-NIOSH)	OSHA Annotated Table Z-1 (NIOSH Pocket Guide to Chemical Hazards (NPG))
chlorine dioxide ... % (10049-04-4)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Chlorine dioxide
ACGIH® TLV® C	0.1 ppm
Remark (ACGIH)	TLV® Basis: Resp tract irr; pulm edema
Regulatory reference	ACGIH 2024
USA - OSHA - Occupational Exposure Limits	
Local name	Chlorine dioxide
OSHA PEL TWA	0.3 mg/m³
	0.1 ppm
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
USA - Cal/OSHA - Occupational Exposure Limits	
Local name	Chlorine dioxide
Cal/OSHA PEL (OEL TWA)	0.3 mg/m³
	0.1 ppm
Cal/OSHA STEL	0.9 mg/m³
	0.3 ppm
Regulatory reference	California Division of Occupational Safety and Health (Cal/OSHA) - Permissible Exposure Limit for Chemical Contaminants (Table AC-1)
USA - NIOSH - Occupational Exposure Limits	
Local name	Chlorine dioxide
NIOSH REL 10h TWA	0.1 ppm
NIOSH REL STEL	0.3 ppm
Regulatory reference (US-NIOSH)	OSHA Annotated Table Z-1 (NIOSH Pocket Guide to Chemical Hazards (NPG))

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:

Avoid contact with skin.

Eye protection:

Avoid contact with eyes.

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Ensure there is sufficient ventilation of the area during use.

Personal protective equipment symbol(s):



SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	: Liquid
Color	: yellow
Odor	: characteristic
Odor threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: 100 °C
Flash point	: > 93 °C
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Explosion limits	: No data available
Particle characteristics	: No data available

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

No additional information available

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

10.2. Chemical stability

No additional information available

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

TRISTEL OPH WORKING SOLUTION

LD50 oral rat	> 2000 mg/kg
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chlorine dioxide ... % (10049-04-4)

LD50 oral rat	93.86 mg/kg body weight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), Guideline: EU Method B.1 (Acute Toxicity (Oral)), Remarks on results: other.: 95% CL: 45,52 - 193,53
LC50 Inhalation - Rat (Vapors)	0.041 mg/l Source: ECHA
ATE US (oral)	100 mg/kg body weight

Skin corrosion/irritation : OECD 404 Slight erythema - Slight irritan

chlorine dioxide ... % (10049-04-4)

pH	< 1
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Serious eye damage/irritation : Not classified

chlorine dioxide ... % (10049-04-4)

pH	< 1
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Respiratory or skin sensitization : Not a skin sensitizer - ISO 10993-10

Germ cell mutagenicity : Non-Mutagenic - OECD 471

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Symptoms/effects after inhalation : May cause respiratory irritation.

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Symptoms/effects after skin contact	: May cause moderate irritation.
Symptoms/effects after eye contact	: May cause slight irritation.
Symptoms/effects after ingestion	: May cause irritation to the digestive tract.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

chlorine dioxide ... % (10049-04-4)	
LC50 - Fish [1]	75 mg/l Test organisms (species): Cyprinodon variegatus
EC50 - Crustacea [1]	0.063 mg/l Test organisms (species): Daphnia magna
LC50 - Fish [2]	0.021 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 72h - Algae [1]	1096 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	0.324 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
NOEC (chronic)	≥ 500 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	≥ 500 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio) Duration: '36 d'

12.2. Persistence and degradability

TRISTEL OPH WORKING SOLUTION	
Persistence and degradability	Biodegradability in water: no data available.
chlorine dioxide ... % (10049-04-4)	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone	: Not classified
Fluorinated greenhouse gases	: No

SECTION 13 Disposal considerations

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.

TRISTEL OPH WORKING SOLUTION

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Additional information : Do not re-use empty containers.

SECTION 14 Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

UN-No. (DOT)	: Not applicable
UN-No. (TDG)	: Not applicable
UN-No. (IMDG)	: Not applicable
UN-No. (IATA)	: Not applicable

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT)	: Not applicable
Proper Shipping Name (TDG)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not applicable

TDG
Transport hazard class(es) (TDG) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

14.4. Packing group

Packing group (DOT)	: Not applicable
Packing group (TDG)	: Not applicable
Packing group (IMDG)	: Not applicable
Packing group (IATA)	: Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT
Not applicable

TDG
Not applicable

IMDG
Not applicable

IATA
Not applicable

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according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

SECTION 15 Regulatory information

15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
chlorine dioxide ... %	10049-04-4	Not present	-	

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. State regulations

No additional information available

SECTION 16 Other information

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Revision date : 5/21/2025

Issue date : 5/21/2025

Full text of hazard classes and H-statements	
H301	Toxic if swallowed
H314	Causes severe skin burns and eye damage
H400	Very toxic to aquatic life

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.